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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,245	09/26/2003	Masaru Sugano	031198	8594

38834 7590 06/05/2008

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EXAMINER	
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ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
06/05/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/670,245	SUGANO ET AL.	
	Examiner	Art Unit	
	JESSICA ROBERTS	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _22 February 2008_.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-22_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-22_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 02/22/2008 have been fully considered but they are not persuasive.

2. Regarding applicants argument that the various metrics (histogram difference metric, interframe difference metric, etc) disclosed by Chakraborty, cannot correspond to the claimed, " a detector for detecting shot density DS of the video" and "a detector for detecting motion intensity of the respective shots".

3. The examiner respectfully disagrees. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (preprocessing the detection of shot boundaries to classify the video in into units of shots before obtaining shot density and a motion intensity) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, as claimed, Chakraborty teaches a detector for shot density DS of the video and a detector for detecting motion intensity of the respective shots. Chakraborty discloses examining pixels at a frame-to frame intensity changes at the pixel level, which would indicative of motion (column 1 line 53-54), Chakraborty discloses a predefined shot duration (column 13 line 15-35); which is equivalent to shot density.

4. Regarding applicants argument that Chakrabory does not discloses or suggests a scene classification device wherein video is segmented into shots and the respective

shots are classified into a “dynamic scene with much motions or a static scene with little motions based on the shot density and the motion intensity".

5. The examiner respectfully disagrees. Chakraborty discloses examining frame-to-frame intensity changes as the pixel level (column 1 line 53-54); pixel activity would indicative of motion. Chakraborty teaches an integrated process for segmenting video shots by successfully identifying scene changes, both abrupt and gradual. A combination of a plurality of difference metrics are processed in an integrated fashion to identify and verify both gradual and abrupt scene changes in the video (column 4 line 66 to column 5 line 5). Further, Chakraborty discloses a predefined shot duration (column 13 line 15 to 35); which is equivalent to the shot density. Since Chakraborty discloses to examine the frames at a pixel level, and segmenting the video into both gradual and abrupt scenes, and the shot duration is used with detecting the abrupt scene (column 13 line 13-35), it is clear to the examiner that Chakraborty segments the video into abrupt or gradual scene based on motion, which reads upon the claimed limitation.

6. Regarding applicant’s argument Chakraborty is not related to motion direction of shots.

7. The examiner respectfully disagrees. Chakraborty discloses where the interframe and histogram difference metrics are used to identify abrupt scene changes and the interframe variance difference metric is used to identify gradual scene changes (see abstract). Chakraborty also discloses the camera might remain fixed or it might undergo one the characteristics directional motion, i.e., panning (column 1line 45-46). Since Chakraborty discloses to use the interframe difference metric to identify abrupt and

gradual scene changes, and it is known in the art to produce a motion vector by taking the difference of two frames, it is clear to the examiner, that the produced motion vector would include also include direction of motion, if the camera undergoes directional motion.

8. Regarding applicants argument that Chakraborty does not disclose the "detector for detecting a shot density DS of the video" and "a commercial scene detector for detecting a commercial scene by comparing a shot density detected during a predetermined interval with a predetermined reference shot density"

9. The examiner respectfully disagrees. Chakraborty discloses video are playing an increasingly import role in education and commerce, Column 1 line 15-18. Further, when the approximate maximum duration is known, since the frames/sec is always known, the maximum frame duration for the scene change is readily ascertainable. If any of the windows have a duration that exceeds this threshold, it may be assumed that the window in question is not likely to be a gradual scene change. In such as case, further examination becomes necessary. The possibilities are that either the window represents just motion or a combination of scene change and motion. In the preferred embodiment, if any window has a duration that exceeds the predefined threshold, it is assumed that the window represents motion, and consequently all points in such window are turned "off" (step 224). All the remaining windows are then identified as candidates for gradual scene change, column 14 line 20-35. Chakraborty teaches a predefined shot duration (column 13 line 15 to 35); which is equivalent to the shot density. Therefore, since Chakraborty discloses videos in education and commerce,

and based on the predefined window threshold, the scene is either gradual or abrupt, it is clear to the examiner that Chakraborty is fully capable of detecting a commercial scene based on the shot density, which reads upon the claimed limitation.

10. Regarding applicants argument that the reference does not disclose or suggest detecting a commercial scene based on a number of shot boundaries detected.

11. The examiner respectfully disagrees Chakraborty discloses video in education and commerce, column 1 line 16-18. As defined by Merriam-Webster Dictionary, a commercial has to do with commerce. Further, the intensity range of a given frame is divided into a number of predefined bins, with each bin corresponding to an intensity range. Next, the number of pixel in each bin counted to generate the corresponding distribution comprising the histogram, column 8 line 51-55.

12. Regarding applicants argument that the combination of Chakraborty and Gonsalves does not disclose “extracting and combining means for extracting and combining a plurality of highlight scenes".

13. The examiner respectfully disagrees. Chakraborty teaches after the different scenes (shots) are determined, the scene change validation module 20, as an additional validation process, extracts keyframes for each of the shots and compares neighboring keyframes. If the keyframes are not sufficiently different, the corresponding shots are merged, column 7 line 52-56. Chakraborty discloses to merge the corresponding shots of the keyframes that are not sufficiently different, it is clear to the examiner that the corresponding shots merged from the keyframes that are not sufficiently different, reads

upon the claimed limitation; as understood by the examiner a highlight scene can either be abrupt or gradual.

14. Regarding applicants argument that the combination of Chakraborty and Gonsalves does not disclose an "inserting means for inserting a video transition effect into a combined portion of the respective highlight scenes, wherein, the inserting means makes a type of the video transition effect to be different according to whether the highlight scenes to be combined are the dynamic or the static scene.

15. The examiner respectfully disagrees. Chakraborty discloses a transition between two shots is made in a gradual manner using special editing machines to achieve a visually pleasing effect. These types of gradual changes are also called "optical cuts". There are several types of optical cuts, such as "fade in", "fade out', "dissolve", "wipe", “flips”, “superimpose”, “blow-ups”, “move-ins”, etc. column 1 line 55-61. Gonsalves teaches a non-linear video editing system, with the capacity to display and modify video frame on a field-by field basis, has the capacity to implement special effects on a field-by field basis, thus increasing the accuracy of the effect, column 3 line 10-13. Since Gonsalves discloses to implement special effects on a field by field basis, it is clear to the examiner, that Gonsalves would be fully capable of inserting different effects based on the type of scenes, which reads upon the claimed limitation.

16.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

19. Claims 1-6,9-14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakraborty et al., US-7, 110,454 in view of Toklu et al., US-6,549,643.

Re **claim 1**, Chakraborty discloses a scene classification apparatus (fig. 1) of video for segmenting video into shot (col. 5, line 1) and classifying each scene composed of one or more continuous shots based on a content of the scene (continuous units or “shots” col. 1 line 35-37, col. 5, lines 16-24; <u>Note</u>: the “metrics” are used for scene classification), comprising: a detector for detecting shot density (histogram difference metric, a histogram is a graphical display of tabulated frequencies and fig. 2A: 203) DS of the video; a detector for detecting motion intensity (interframe difference metric col. 4 line 22-23, col. 14 lines 30-32, and fig. 2A: 202) of the respective shots; and a dynamic/static scene detector (metric computation col. 5 line 9-11, fig. 1:14-17 and fig. 2A) for classifying the respective shots into a dynamic scene (abrupt scene, see abstract, furthermore, the meaning of abrupt is interpreted as sudden or

fast) with much motions or a static scene with little motions (gradual scene, see abstract, furthermore, the meaning of gradual is interpreted as slow and not moving quickly) based on the shot density (histogram difference, a histogram is a graphical display of tabulated frequencies) and the motion intensity (interframe difference col. 4 line 22-23 and col. 14 lines 30-32).

Chakraborty does not explicitly teach a shot segmentation device to segment the video into respective shots. However, Toklu teaches a shot segmentation device to segmentation device to segment the video into respective shots (video segmentation module 12, column 5 line 38-57, and fig 1 element 12).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Toklu with Chakraborty to generate a content based visual summary of video and facilitate digital video browsing and indexing, column 3 line 40-43).

Regarding **claim 2**, the combination of Chakraborty as a whole teaches everything as claimed above, see claim 1. In addition Chakraborty discloses the scene classification apparatus of video according to claim 1, wherein the dynamic/static (metric computation col. 5 lines 9-11, fig. 1:14-17 and fig. 2A) scene detector classifies a shot whose shot density (histogram difference, a histogram is a graphical display of tabulated frequencies) is larger than first reference density and whose motion intensity is stronger than first reference intensity (frame to frame intensity col. 1 lines 50-53) into the dynamic (abrupt col. 12, line 67; col. 13 line 1-3) scene.

Regarding **claim 3**, the combination of Chakraborty as a whole teaches everything as claimed above, see claim 1. In addition Chakraborty discloses the scene classification apparatus of video according to claim 1, wherein the dynamic/static scene detector (metric computation col. 5 lines 9-11, fig. 1:14-17 and fig. 2A) classifies a shot whose shot density (histogram difference, a histogram is a graphical display of tabulated frequencies) is smaller than second reference density and whose motion intensity (histogram difference computation fig. 1:16) is weaker than second reference intensity into the dynamic scene (gradual scene).

Regarding **claim 4**, the combination of Chakraborty as a whole teaches everything as claimed above, see claim 1. In addition Chakraborty discloses a scene classification apparatus (fig. 1) of video for segmenting video into shots (col. 5, line 1) and classifying each scene composed of at least one continued shot based on a content of the scene (continuous units or “shots” col. 1 line 35-37, col. 5, lines 16-24; Note: the “metrics” are used for scene classification), comprising: an extractor for extracting shots (validation module col. 7 lines 54-55) similar to a current target shot (candidate and non-candidate scene change locations (frames) col. 7 lines 36-38 and fig. 1:19) from shots after a shot before the target shot (compares neighboring keyframes col. 7 line 55) only by a predetermined interval (predetermined threshold col. 14 line 59); and a slow (gradual) scene detector (interframe variance difference col. 7 line 48-50) for classifying the target shot (candidate and non-candidate scene change locations (frames) col. 7 lines 39-38) into a slow scene (gradual) of the similar shot based on motion intensity (interframe difference col. 14 lines 30-32) of the target shot (candidate and non-

candidate scene change locations (frames) col. 7 lines 36-38 and fig. 1:19) and the similar shot (key frame col. 14 lines 52-57 and fig 2B: 229).

Chakraborty does not explicitly teach a shot segmentation device to segment the video into respective shots. However, Toklu teaches a shot segmentation device to segmentation device to segment the video into respective shots (video segmentation module 12, column 5 line 38-57, and fig 1 element 12).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Toklu with Chakraborty to generate a content based visual summary of video and facilitate digital video browsing and indexing, column 3 line 40-43).

Regarding **claim 5**, the combination of Chakraborty as a whole teaches everything as claimed above, see claim 1. In addition Chakraborty discloses the scene classification apparatus of video according to claim 4, wherein the slow (gradual) scene detector (interframe variance difference metric computation col. 7 line 48-50 and fig. 1: 17) classifies the target shot (candidate and non-candidate scene change locations (frames) col. 7 lines 36-38 and fig. 1:19) into the slow scene (gradual scene) of the similar shot when the motion intensity (interframe difference col. 14 lines 30-32) of the similar shot is stronger than the motion intensity (interframe difference col. 14 lines 30-32) of the target shot (candidate and non-candidate scene change locations (frames) col. 5 line 20-24).

Regarding **claim 6**, the combination of Chakraborty as a whole teaches everything as claimed above, see claim 1. In addition Chakraborty further discloses

comprising a first highlight (gradual) scene detector (shot list database col. 8 line 8-11 fig. 1:21) for classifying a scene composed of a plurality of shots continued just before (neighboring key frames col. 7 line 55-59) the slow (gradual) scene into a first highlight (gradual) scene.

Regarding **claim 9,** Chakraborty discloses a scene classification apparatus (fig. 1) of video for segmenting video into shots (col. 5, line 1) and classifying each scene composed of at least one continued shot based on a content of the scene (continuous units or “shots” col. 1 line 35-37, col. 5, lines 16-24; Note: the “metrics” are used for scene classification), comprising: an extractor for extracting shots (validation module col. 7 lines 54-55), comprising: detector for detecting a histogram relating to motion directions of the shots (histogram difference metric col. 8 line 51-56 and col. 9 line 4-5); and a detector for detecting a scene in which a camera operation has been performed based on the histogram of motion direction (interframe difference col. 4 lines 16-17).

Chakraborty does not explicitly teach a shot segmentation device to segment the video into respective shots. However, Toklu teaches a shot segmentation device to segmentation device to segment the video into respective shots (video segmentation module 12, column 5 line 38-57, and fig 1 element 12).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Toklu with Chakraborty to generate a content based visual summary of video and facilitate digital video browsing and indexing, column 3 line 40-43).

Regarding **claim 10**, the combination of Chakraborty as a whole teaches everything as claimed above, see claim 1. In addition Chakraborty discloses the scene classification apparatus of video according to claim 9, further comprising a zooming scene detector (interframe variance difference metric col. 4 lines 15-17) for, when the histogram of motion direction (histogram difference metric col. 8 lines 54-57) is uniform (col. 8 lines 62-63, i.e. “normal’ intensity distribution) and a number of elements of respective bins is larger than a reference number of elements (each bin corresponding to an intensity range col. 8 line 53), classifying its shot into a zooming scene (gradual scene).

Regarding **claim 11**, the combination of Chakraborty as a whole teaches everything as claimed above, see claim 1. In addition Chakraborty discloses the scene classification apparatus of video according to claim 9, further including: detector for detecting spatial distribution (variance difference furthermore, the variance difference detects the difference within a frame where spatial distribution takes place) of motion of each shot; and a panning scene detector (interframe and histogram difference metric col. 7 lines 46-48) for detecting whether the respective shots are a panning scene (abrupt scene) based on the histogram of motion direction (histogram difference metric, the histogram as well as the interframe difference metric are processed to validate candidate scene changes as abrupt col. 7 lines 45-48 and fig. 2A: 202-203) and the spatial distribution of motion (variance difference).

Regarding **claim 12**, the combination of Chakraborty as a whole teaches everything as claimed above, see claim 1. In addition Chakraborty discloses the scene

classification apparatus of video according to claim 11, wherein when the histogram of motion (histogram difference metric) direction is concentrated in one direction and the spatial distribution (variance difference furthermore, the variance difference detects the difference within a frame where spatial distribution takes place) of motion is uniform (typically assumed not to change from frame to frame col. 12 lines 33-34), the panning scene detector (interframe and histogram difference metric col. 7 lines 46-48) classifies shot into the panning (abrupt) scene.

Regarding **claim 13**, the combination of Chakraborty as a whole teaches everything as claimed above, see claim 1. In addition Chakraborty discloses a scene classification apparatus (fig. 1) of video for segmenting video into shots (col. 5, line 1) and classifying each scene composed of one or more shots based on a content of the scene (continuous units or “shots” col. 1 line 35-37, col. 5, lines 16-24; Note: the “metrics” are used for scene classification), comprising: an extractor for extracting shots (validation module, col. 7 lines 54-55), comprising: a detector for detecting a shot density DS (histogram difference metric, a histogram is a graphical display of tabulated frequencies) of the video; and a commercial scene detector (interframe and histogram difference metric, col. 7 lines 46-48) for detecting a commercial scene (abrupt scene) by comparing a shot density (minimum predefined shot duration col. 13 lines 18-35) detected during a predetermined interval with a predetermined reference shot density (column 14 line 21-27).

Regarding **claim 14**, Chakraborty discloses a scene classification apparatus of video for segmenting video into shots and classifying each scene composed of one or

more continuous (continuous units or “shots”, col. 1 line 35-37) shots based on a content of the scene, comprising: a detector for detecting a number of shot boundaries (threshold levels, col. 5 lines 22-23, furthermore, histograms are the most common method used to detect shot boundaries) of the video; and a commercial scene detector (interframe and histogram difference metric, col. 7 lines 46-48) for detecting a commercial scene (abrupt scene. Chakraborty further discloses video in education and commerce; a video in commerce would be a commercial scene) by comparing a number of shot boundaries (threshold level col. 5 line 22-23) detected during a predetermined interval with a predetermined reference number (column 14 line 21-27).

Chakraborty does not explicitly teach a shot segmentation device to segment the video into respective shots. However, Toklu teaches a shot segmentation device to segmentation device to segment the video into respective shots (video segmentation module 12, column 5 line 38-57, and fig 1 element 12).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Toklu with Chakraborty to generate a content based visual summary of video and facilitate digital video browsing and indexing, column 3 line 40-43).

Regarding **claim 16**, Chakraborty discloses the scene classification apparatus of video according to claim 11, wherein the video are compressed data (video source may be either compressed or decompressed video data, col. 6 lines 45-46), and the spatial distribution (variance difference, referring to within the frame, furthermore, MPEG has spatio temporal locator capabilities) of motion is detected by using a value of a motion

vector of a predictive coding image existing in each shot (MPEG, col. 6 lines 51-60, furthermore, MPEG is a predictive image coding technique that incorporates tabulating motion vector values).

10. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakraborty (US Patent 7,110,454) in view of Toklu et al., US-6,549,643 and in further view of Blanchard US Patent 6347114).

Regarding **claim 7**, Chakraborty fails to teach a detector for detecting the intensity of audio signals accompanied by the video. Blanchard teaches a detector for detecting intensity of an audio signal (audio levels col. 3 lines 37-51) accompanied by the video (col. 2 lines 27-29) into shot. Blanchard also teaches detector for classifying a scene composed of a plurality of shots continued before and after a shot with the audio signal intensity stronger than the predetermined intensity (col. 2 lines 17-22) into a second highlight scene (gradual scene).

Taking the combined teaching of Chakraborty (modified by Toklu) and Blanchard as a whole, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to incorporate detecting the intensity of audio signals accompanied by the video as claimed for the benefit of detecting scene changes that may generally be identified and distinguished from mere shots changes where the audio level will generally remain the same.

Regarding **Claim 8**, the combination of Chakraborty (modified by Toklu) and Blanchard as whole further teaches everything claimed as applied above; see claims 7. In addition Chakraborty teaches a commercial scene detector (interframe and histogram

difference metric col. 7 lines 46-48, Chakraborty) for classifying the respective shots into a commercial scene (abrupt scene), wherein a scene classified into a scene other than the first highlight scene (gradual), the second highlight scene (gradual scene) and the commercial scene (abrupt scene) is classified into the highlight scene (gradual).

20. Claims 15,17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chakraborty (US Patent 7,110,454) in view of Toklu et al., US-6,549,643 and in further view of Park et al., US-6,597,738.

Regarding **claim 15**, the combination of Chakraborty and Toklu as a whole teaches everything as claimed above, see claim 1 or 4. In addition, Chakraborty discloses the scene classification apparatus of video according to claim 1 or 4, wherein the video are compressed data (video source may be either compressed or decompressed video data, col. 6 lines 45-46). However, Chakraborty silent in regards to the motion intensity is detected by using a value of a motion vector of a predictive coding image existing in each shot.

However, Park teaches motion intensity is detected by using a value of a motion vector of a predictive coding image existing in each shot (column 16 line 20-35 and fig. 14).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Chakraborty (modified by Toklu) with Parks' teaching of motion intensity detected by motion vectors to increase the speed and efficiency of data search, it has been researched and developed new search techniques which include the widely-known character-based search technique and have

composite information attribute, thereby being suitable for efficient data search of multimedia (column 1 line 30-36).

Regarding **claim 17** the combination of Chakraborty and Toklu as a whole teaches everything as claimed above, see claim 1 or 4. In addition, Chakraborty discloses the scene classification apparatus of video according to claim 9, wherein the video are compressed data video source may be either compressed or decompressed video data, col. 6 lines 45-46). Chakraborty is silent in regards to the histogram of motion direction is detected by using a value of a motion vector of a predictive coding image existing in each shot.

However, Park teaches the histogram of motion direction is detected by using a value of a motion vector of a predictive coding image existing in each shot (Park, column 16 line 63 to column 17 line 10, column 22 line 31-49, column 18 line 29-31, fig. 9 and fig. 14).

Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Chakraborty (modified) with Parks' teaching of a histogram of motion direction is detected by using a value of a motion vector of a predictive coding image existing in each shot to increase the speed and efficiency of data search, it has been researched and developed new search techniques which include the widely-known character-based search technique and have composite information attribute, thereby being suitable for efficient data search of multimedia (column 1 line 30-36).

Regarding **claim 18**, the combination of Chakraborty and Toklu as a whole teaches everything as claimed above, see claims 1 or 4. In addition, Chakraborty discloses the scene classification apparatus of video according to claims 1 or 4, wherein the video are uncompressed data (video source may be either compressed or decompressed video data, col. 6 lines 45-46). However, Chakraborty is silent in regards to the motion intensity (is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots.

However, Park teaches the motion intensity is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots (Park, column 11, line 66 to column 12 line 7 and column 24 line 55-60, and column 18 line 29-31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Chakraborty (modified by Toklu) with the Parks' teaching of the motion intensity (is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots, to increase the speed and efficiency of data search, it has been researched and developed new search techniques which include the widely-known character-based search technique and have composite information attribute, thereby being suitable for efficient data search of multimedia (column 1 line 30-36).

Regarding **claim 19**, the combination of Chakraborty and Toklu as a whole teaches everything as claimed above, see claims 1 or 4. In addition, Chakraborty

discloses the scene classification apparatus of video according to claims 1 or 4, wherein the video are uncompressed data (video source may be either compressed or decompressed video data, col. 6 line 45-46). However, Chakraborty is silent in regards to the spatial distribution of motion is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots.

However, Park teaches the spatial distribution of motion is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots (Park, column 23 line 20-30. Further Park discloses the motion direction is computed from the motion vector values, column 16 line 62-65 and column 18 line 29-31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Chakraborty (modified by Toklu) with Parks' teaching of spatial distribution of motion is detected by using a value of a motion vector representing a change in motion, to increase the speed and efficiency of data search, it has been researched and developed new search techniques which include the widely-known character-based search technique and have composite information attribute, thereby being suitable for efficient data search of multimedia (column 1 line 30-36).

Regarding **claim 20** the combination of Chakraborty and Toklu as a whole teaches everything as claimed above, see claims 1 or 4. In addition Chakraborty discloses the scene classification apparatus of video according to claims 1 and 4,

wherein the video are uncompressed data (video source may be either compressed or decompressed video data, col. 6 line 45-46). Chakraborty is silent in regards to the histogram of motion direction (histogram difference metric) is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots.

However, Park teaches the histogram of motion direction is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots (column 11 line 14-27, column 18 line 29-31 and fig. 1J).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Chakraborty (modified by Toklu) with Parks' teaching of spatial distribution of motion is detected by using a value of a motion vector representing a change in motion, to increase the speed and efficiency of data search, it has been researched and developed new search techniques which include the widely-known character-based search technique and have composite information attribute, thereby being suitable for efficient data search of multimedia (column 1 line 30-36).

12. Claims 21-22 are rejected under 35 U.S.C 103(a) as being unpatentable over Chakraborty (US Patent 7,110,454) in view of Toklu et al.,US-6,549,643 and further in view of Gonsalves US Patent (6,392,710).

Regarding **claim 21**, which is substantially the same as claim 1 in addition to the limitation of inserting a video transition effect into a combined portion of the respective

highlight scenes. Chakraborty fails to teach this aspect. However, the analysis and rejection of claim 1 apply here for common subject matter.

Gonsalves teaches allowing the video editor to insert a video transition effect on a field/frame-by-field/frame basis in order to improve accuracy of the effect (Gonsalves, special effect, col. 3 lines 11-14, line 24, between two frames col. 4, 65-67, col. 5 lines 50-52, and fig. 3b: 320a –320b).

Taking the combined teaching of Chakraborty (modified by Toklu) and Gonsalves as a whole, it would have been obvious to one of ordinary skills in the art at the time the invention was made to utilize the technique of inserting a transition effect as taught in Gonsalves to improve its accuracy for video editing purposes.

Regarding **claim 22**, the combination of Chakraborty and Toklu as a whole teaches everything as claimed above, see claim 1. In addition, Chakraborty discloses a video processing system for generating a content-based visual summary of video to facilitate digital video indexing and browsing as well as a database for storing (col. 6 lines 34-40). Chakraborty fails to teach inserting transition effects; however, Gonsalves does (see discussion in claim 21).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Chakraborty (modified by Toklu) with Gonsalves to improve its accuracy for video editing purposes.

Conclusion

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA ROBERTS whose telephone number is (571)270-1821. The examiner can normally be reached on 7:30-5:00 EST Monday-Friday, Alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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05/29/2008